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Before the
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
	)	
	)	
Forward-Looking Mechanism For High Cost Support For Non-Rural LECs	)	CC Docket No. 97-160 (DA 98-848)

REPLY COMMENTS

BellSouth Corporation, on behalf of itself and its affiliates, (BellSouth) hereby submits its Reply Comments in the above referenced proceeding.

The *Public Notice* provided parties with an opportunity to update the record regarding inputs that would be utilized in conjunction with a forward-looking cost model to calculate the costs of universal service.[1] In addition, the *Public Notice* solicited comments concerning the revenue benchmark that should be used by the Commission to size the federal universal service fund.

BellSouth as a co-sponsor of the Benchmark Cost Proxy Model (BCPM) has advocated that the Commission adopt the BCPM as the forward-looking cost model for the purposes of calculating universal service costs. The record in this proceeding overwhelmingly establishes that the BCPM is superior to the HAI model. There is no need to restate that record. The essential purpose here is to focus on the inputs to be used with a forward-looking cost model,

[1] "Common Carrier Bureau Requests Further Comment on Selected Issues Regarding the Forward-Looking Economic Cost Mechanism for Universal Service Support," *Public Notice*, DA 98-848, released May 4, 1998 ("*Public Notice*").

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regardless of the actual model chosen. As BellSouth explained in its Comments, nationwide average default values, irrespective of whether they are the BCPM default values or the HAI default values, cannot accurately depict the costs that an efficient carrier can reasonably expect to incur in providing universal service in BellSouth's operating territories.[2] Only state specific input values are appropriate for use in determining the cost of providing universal service. Accordingly, as part of its Comments, BellSouth provided state specific input values that reflected the forward-looking cost of an efficient, least-cost network. These input values are based upon BellSouth's experience in providing quality telecommunications services in the high cost areas in which it operates.

AT&T and MCI, co-sponsors of the HAI model, argue most of the arguments and evidence that they have presented regarding the HAI "Input Portfolios" have never been refuted. To say the least, AT&T's and MCI's assertion is an exaggeration of the facts.[3] The HAI model and its inputs have continuously been disputed before the Commission, particularly by the joint

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[2] *See* BellSouth Comments at 4.

[3] For example, AT&T and MCI (p, 3) tout as fact that the HAI model includes sufficient line card costs for copper loops over 12,000 feet in length. These parties neglect to point out that state commissions have examined the HAI model and have come to different conclusions. For example, the South Carolina Public Service Commission found that "[n]ot only does HM 5.0a's use of standard channel cards on loops that extend to 18,000 feet violate the AT&T OSP handbook, it is also not consistent with guidelines published by the manufacturer of the DLC assumed by both models to be used in the network, the Litespan 2000. The Litespan guidelines describe limitations on loop lengths and the need for extended range line cards for loops beyond 12,000 feet." (citations omitted) *In Re: Proceeding to Establish Guidelines for an Intrastate Universal Service Fund*, Order on Universal Service Cost Models, Docket No. 97-239-C-Order No. 98-322, May 6, 1998 at 51.

sponsors of the BCPM.[4] Parties submitting comments on the *Public Notice* also provide ample evidence to refute the HAI default inputs as well as the model's platform.[5] More to the point is the fact that state commissions, even if they have adopted the HAI platform, have found fault with the HAI defaults and made adjustments.[6]

If there is any doubt about the inadequacies of the HAI default inputs, it is eliminated by the critique of the HAI default inputs prepared by the Georgetown Consulting Group, Inc. (GCG).[7] The analysis prepared by the GCG demonstrates that "[t]he default values recommended by AT&T and MCI model as inputs into the HAI Model for purposes of determining the size of the Universal Service Fund are unreasonable, fail to reflect the specific conditions of the territory for which the fund is being fashioned and fail to be reasonable and

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[4] For example, BellSouth has filed a motion with the Commission requesting that it direct the sponsors of HAI to make the sources of its geo-coding data available for inspection to the Commission and all interested parties. This motion reflects the fact that serious flaws with the data have recently been uncovered which call into question the validity and correctness of the geo-coding data and hence, the cost calculations of the distribution module of the HAI model. Thus, contrary to AT&T's and MCI's apparent belief that HAI's use of geo-code data makes that model more accurate (p.3), the fact of the matter is that its use of geo-code data is a source of error and distortion.

[5] *See e.g.*, Comments of Alliant, GTE and SBC.

[6] For example, in Louisiana, the HAI inputs were adjusted to reflect BellSouth's inputs that would be used to calculate the costs of unbundled network elements. *In Re: The development of rules and regulation applicable to the entry and operations of, and the providing of services by, competitive and alternate access providers in the local, intrastate and/or interexchange telecommunications market in Louisiana (Universal Service)*, Order No. U-20883 (Subdocket-A)-A, April 15, 1998 Open Session, adoption of Staff's Final Recommendation, dated March 30, 1998. The Kentucky Commission also adjusted the HAI inputs, relying to a considerable extent on the alternative values submitted by BellSouth's expert witness, Georgetown Consulting Group. *In the Matter of An Inquiry into Universal Service and Funding Issues*, Administrative Case No. 360, Order, May 22, 1998, pp.19-23.

[7] The critique and associated data are provided in Attachments 1 and 2.

forward-looking."[8] Even if the Commission decided to use the HAI platform, it is essential that the appropriate inputs are selected. Accordingly, GCG provides specific state input values for HAI user-adjustable inputs for each of the BellSouth states. These data show that the cost

[illegible] to state are sufficiently significant to warrant the application of individual

support mechanisms that exist today.[9] Thus, the first step to achieve this objective is to convert current implicit support embedded in interstate access charges to an explicit mechanism.[10] This implicit amount together with current explicit interstate support[11] establishes the floor of the new federal universal service fund. It is at this point that the affordability benchmark comes into

model. BellSouth remains committed to working with the Commission to resolve any outstanding issues as expeditiously as possible.

Respectfully submitted,

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Date: June 12, 1998

ATTACHMENT 1

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Federal-State Joint Board on	)	CC Docket No. 96-45
Universal Service	)	
	)	
Forward-Looking Mechanism	)	
for High Cost Support for	)	CC Docket No. 97-160
Non-Rural LECs	)	(DA 98-848)

POSITION AND RECOMMENDATION OF GEORGETOWN CONSULTING GROUP, INC.
REGARDING APPROPRIATE INPUTS FOR BELLSOUTH STATES
FOR USE IN HAI R5.0a

I. INTRODUCTION

On May 4, 1998 the Commission released a public notice seeking to augment the record on certain issues relating to the creation of a Federal forward-looking economic cost mechanism, including the appropriate input values for that mechanism and the level of the revenue benchmark. This paper focuses primarily on the appropriate input values that should be used in a cost proxy model, in particular for the HAI Model and responds to the Comments of AT&T and MCI, specifically.[1] In so doing, we take cognizance that the Commission noted those parties' arguments for and against specific input values are significantly more persuasive when accompanied by supporting empirical data including the assumptions on which those data are based. Accordingly such information accompanies this paper.

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[1] This paper was prepared by Jamshed K. Madan, Michael D. Dirmeier and David C. Newton. A statement of the authors' qualifications is appended to this paper.

II. SUMMARY OF COMMENTS

AT&T Corp. and MCI Telecommunications Corporation begin their comments dated June 1, 1998 in this docket, with the statement:

> Through multiple rounds of comments and reply comments last fall AT&T and MCI exhaustively demonstrated the efficacy of the Hatfield Model's key default input values.[2]

Most if not all of the alleged demonstration to which they refer is the "Inputs Portfolio" accompanying one or more of the many versions in which the Hatfield Model, now the HAI Model, has existed. In no sense does the "Inputs Portfolio" presented previously to this Commission or to the numerous state jurisdictions in which it has been filed demonstrate "efficacy" or any other attribute concerning the HAI Model default inputs. As indicated herein, those default inputs are the "engineering opinion" of a group of individuals, who produced their opinion through an unspecified collegial process, without any reference to the known actual costs of any company providing telecommunications services in any state.

The default values recommended by AT&T and MCI as inputs into the HAI Model for purposes of determining the size of the Universal Service Fund are unreasonable, fail to reflect the specific conditions of the territory for which the fund is being fashioned and fail to be reasonable and forward-looking. This paper does not deal with the logic and validity of the HAI Model. BellSouth, as a BCPM sponsor, previously has commented on those issues.

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[2] *See Federal-State Joint Board on Universal Service*, "Comments of AT&T Corp. and MCI Telecommunications Corporation on Designated Input and Revenue Benchmark Issues," CC Docket Nos. 96-45, 97-160 at 1 (June 1, 1998).

Whatever the integrity of the HAI Model is deemed to be for use in determining Universal Service Support, the results of applying it cannot be reasonable if, as the case is here, the values selected by AT&T and MCI do not properly reflect the conditions of the territory for which the Universal Service Fund is being designed and do not reasonably reflect cost or other conditions reasonably expected to occur in the future.

The cost to provide basic local exchange service used by the Commission in these dockets to establish Federal Universal Service Support should (1) reflect the conditions of the territory for which the Universal Service Fund is being designed, and (2) be forward-looking and reasonable; *i.e.*, reflect cost or other conditions reasonably expected to occur in the future.

Assuming the validity of the HAI Model as a model, and assuming that it is appropriate to use the HAI Model for purposes of determining Universal Service Support, it is possible to develop appropriate inputs for that model that reflect conditions of the territory for which the Universal Service Fund is being designed that are properly forward-looking, reasonable and reflect the conditions of the territory. This paper provides the Commission with the appropriate input values for user-adjustable inputs ("UAIs") that reflect conditions of the states in which BellSouth operates that are properly forward-looking and reasonable. These inputs are consistent with the Commission's adoption of the Joint Board's recommendation that an eligible carrier's level of Universal Service Support should be based upon forward-looking economic cost of constructing and operating the network facilities and functions used to provide the services that will be supported by the Federal Universal Service support mechanisms (Public Notice, released May 4, 1998, page 1).

We recommend that the inputs for use in any model be specifically developed by state and that the Universal Service Support mechanisms be constructed by each state individually. The empirical data provided will indicate that the differences from state to state are sufficiently significant to warrant individual application. A "one size fits all" approach is not appropriate. There are significant and sufficient differences in the operations and costs, from state to state, to warrant the preparation of specific inputs for each state, as recommended herein. Some of the items, for example, not recognized by a single regional or national set of inputs, include:

- State-specific income taxes;
- State-specific sales taxes;
- State-specific ad valorem and other taxes;
- State-specific permitting requirements for maintenance and right-of-way acquisitions;
- State-specific rates for labor, transportation and other related services; and
- Local congestion, traffic conditions and government regulations creating significantly variable time requirements to perform outside plant functions.

If the costs of doing business were the same in every state, no company would ever relocate operations due to excessive costs in specific local areas. The facts are, local costs do vary. Companies are relocating every day to find cheaper access to transportation, raw materials and labor. A single national or regional cost input makes the false and unreasonable assumption that telephone companies can relocate, which of course they cannot do. It is wrong to use a single input applicable to all states. If the Commission adopts a single input, it will have no idea of

whether the Universal Service Fund will be appropriately sized or whether the legislative mandate of universal service will result from application of the Fund.

The AT&T / MCI submission of June 1, 1998 states: at page 15:

> AT&T and MCI believe that a nationwide composite rate is more appropriate. First, costs appear to vary more with density -- i.e., whether the area is urban, suburban, or rural -- than with the state where the area is located.

This proposition has never been established by AT&T or MCI, or anyone else, in any proceeding. The plain fact is that costs do vary, by state and by region, and few purchasers of any product, much less local telecommunications products, pay nationwide rates. While *materials costs* in many instances are national in scope, the actual cost of installation and operation varies significantly from state to state, for the reasons discussed above. These local differences, which are critical to the forward-looking costs that will be incurred by BellSouth and other telecommunications providers, are precisely the cost differences that AT&T and MCI seek to avoid.

Short of developing region-specific inputs, there are only two mechanisms through which HAI R5.0a can produce output costs that are state-specific: (1) the model captures the effect of different geophysical characteristics, such as soil types and, (2), the model captures regional cost differences through the regional labor adjustment factor.[3] Neither of these adjustments magically transforms national default inputs into actual state-specific costs. First, while the geophysical

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[3] *See Federal-State Joint Board on Universal Service*, "Comments of AT&T Corp. and MCI Telecommunications Corporation on Designated Input and Revenue Benchmark Issues," CC Docket Nos. 96-45, 97-160 at 15-16 (June 1, 1998).

data may increase or decrease the national cost inputs by a given percentage to reflect local soil conditions, that increase/decrease does not validate the underlying national default cost input that otherwise would be applicable. Second, the regional labor adjustment factors proposed by AT&T / MCI in each of the BellSouth jurisdictions results in a labor cost that is always substantially below the actual labor cost negotiated by BellSouth at arms-length in collective bargaining agreements. For example, in Tennessee, AT&T / MCI supported a regional labor adjustment factor of 70%. Using that factor, HAI R5.0a has an implicit loaded hourly labor rate of $29.00[4], which is well below BellSouth's actual hourly labor rate of $40.80. The regional labor adjustment factor cannot, as AT&T/MCI claim, transform national default numbers into valid regional or company-specific input values.

By developing values for the user-adjustable inputs required by the HAI Model that are based upon forward-looking economic costs of constructing and operating the network facilities and functions used to provide the services that will be supported by the Federal Universal Service Support mechanisms, and without changing the logic of the HAI Model, the following

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[4]

$ 35.00	Hourly labor rate assumed by HAI R5.0a default inputs
.571	Portion of hourly rate affected by regional labor adjustment factor
$ 20.00	Hourly rate affected by regional labor adjustment factor
- 30%	1- AT&T's regional labor adjustment factor for Tennessee
$ (6.00)	Hourly reduction due to regional labor adjustment factor
35.00	Hourly labor rate assumed by HAI R5.0a default inputs
$ 29.00	Loaded hourly labor rate based on AT&T / MCI regional labor rate adjustment for Tennessee.

results are obtained using (i) the FCC-unified inputs, (ii) the MCI/AT&T default values and (iii) territory-specific recommendations contained herein:

HAI R5.0a - Summary of Results

	UNE Cost Rates			
	Loop	Aggregated Switch	Total	Total USF
FCC-Unified Inputs				
1. Alabama	$ 19.09	$ 3.75	$ 22.84	$ 106,944,932
2. Florida	11.35	2.81	14.16	23,555,951
3. Georgia	13.91	3.09	17.00	72,719,407
4. Kentucky	17.89	4.17	22.06	54,228,479
5. Louisiana	15.73	3.82	19.55	81,406,886
6. Mississippi	25.32	4.77	30.09	144,485,684
7. N. Carolina	14.01	3.33	17.35	39,939,653
8. S. Carolina	15.79	3.62	19.41	36,433,970
9. Tennessee	16.24	3.60	19.84	91,899,461
10. BellSouth Total				$ 651,614,424

	UNE Cost Rates			
	Loop	Aggregated Switch	Total	Total USF
AT&T / MCI Default Inputs				
11. Alabama	$ 18.42	$ 4.64	$ 23.06	$ 81,395,096
12. Florida	10.74	3.62	14.36	11,124,053
13. Georgia	13.61	3.91	17.52	51,431,832
14. Kentucky	17.05	5.07	22.12	33,220,351
15. Louisiana	15.00	4.74	19.74	61,148,962
16. Mississippi	23.96	5.78	29.74	111,874,422
17. N. Carolina	13.86	4.22	18.08	24,691,496
18. S. Carolina	15.65	4.57	20.22	23,674,947
19. Tennessee	15.51	4.46	19.97	62,864,011
20. BellSouth Total				$ 461,425,170

	UNE Cost Rates			
	Loop	Aggregated Switch	Total	Total USF
Territory-Specific Average of DISC*S and Litespan Results				
21. Alabama	$ 31.91	$ 7.65	$ 39.56	$ 265,700,025
22. Florida	25.37	6.36	31.73	286,036,408
23. Georgia	25.23	6.39	31.63	260,132,013
24. Kentucky	29.78	7.65	37.43	143,565,237
25. Louisiana	37.04	7.51	44.56	403,742,733
26. Mississippi	45.29	7.57	52.86	333,903,473
27. N. Carolina	27.58	6.62	34.20	192,833,374
28. S. Carolina	37.34	6.81	44.16	210,757,624
29. Tennessee	24.15	6.27	30.42	191,051,137
30. BellSouth Total				$ 2,287,722,024

Note: In the above tables, the USF is the amount computed in the "density zone" module of HAI R5.0a.

As can be seen from the above, the computations of the Universal Service Fund requirement based upon either the FCC-unified inputs or the AT&T/MCI default inputs significantly understate the appropriate amounts required for the Universal Service Fund Support mechanism. For the overwhelming majority of the default inputs recommended by AT&T/MCI, no empirical backup is provided for the input value other than "expert opinion." In addition, the recommendation made by AT&T/MCI that the same default values be applied in every state is erroneous on its face. It is not difficult to see that an input value cannot be equally valid in New York, New Hampshire, Alabama, New Mexico and so on. The argument that the input values are made territory-specific by applying geocoding and geological data is equally fallacious.

Geocoding data simply brings into the database the population, number of telephone lines, *etc.* that are contained in the state. Geological data also brings in the soil conditions in the state. The population and soil conditions, however, cannot explain such variances as state income taxes, state sale taxes, other state taxes, state-specific permitting requirements as well as the region-specific costs of doing business in a high technology industry.

The data provided with this paper in support of the inputs developed by BellSouth as appropriate user-changeable inputs are based upon the best available forward-looking economic costs for BellSouth derived from its operations in nine states. These forward-looking costs include all of the substantial purchasing discounts available to BellSouth, the most recent actual prices paid for copper, fiber, *etc.* It includes components for the most efficient engineering design to provide the services under consideration, including deployment of digital loop carrier. A comparison of the default inputs recommended by AT&T/MCI to the appropriate inputs developed on a territory-specific basis as well as the common inputs provided by the Commission for comment is presented in Exhibit 2. As can be seen from this exhibit, the territory-specific input in some cases is below the default value recommended by AT&T/MCI while in many other cases, the territory-specific value is significantly higher. A similar result is obtained when comparing the Commission common inputs to the territory-specific inputs. An empirical comparison of the component pieces of the difference is not possible because these components are not provided by AT&T/MCI. For example, the specific details surrounding the components that are to comprise a digital loop carrier system has not been provided by AT&T/MCI, leave alone the prices of those individual components. In providing a buildup of

the value recommended by BellSouth to be territory-specific, detailed configurator sheets for every item was evaluated, a maximum discount applied and the price of the total system determined.

In summary, territory-specific forward-looking economic costs can and have been derived using the most efficient current technology and should be used to determine an eligible carrier's level of universal service support.

III. SENSITIVE INPUTS: VALUES SELECTED FOR CERTAIN USER-ADJUSTABLE INPUTS SIGNIFICANTLY AFFECT PRICES AND UNIVERSAL SERVICE SUPPORT

This paper is based upon the most recent version available of the HAI Model - Version 5.0a ("HAI R5.0a"). In our analysis, we examined HAI R5.0a in order to determine how the user-adjustable inputs affect results. In HAI R5.0a, there are 201 groups of user-adjustable inputs; *i.e.*, inputs that are intended to be changed by the user of the model. This is in contrast to the number of inputs to the HAI Model cited by AT&T/MCI, which number over 100,000 for most companies. The majority of these inputs referred to by AT&T/MCI refer to geocoded and geological data points, which are used in the pre-processor module of the HAI Model, and which are not intended to be adjusted by users of the model. Our sensitivity analyses showed that 14 groups of related user-adjustable inputs, encompassing about 70 out of the 201 specific user-adjustable inputs, are sensitive; *i.e.*, they materially affect cost as measured by the model. The remaining user-adjustable inputs do not individually or as a group significantly affect the end result of applying HAI R5.0a. Attached as Exhibit 1, and incorporated herein by reference, is a

list identifying the 14 groups of related user-adjustable inputs that are sensitive.[5] The remaining approximately 130 user-adjustable inputs are insensitive. We determined them to be insensitive by changing each default value of the insensitive user-adjustable input in a direction that decreases loop and switching price. We adjusted the input value in a significant amount. Moreover, we ran all of these changes together in combination. On a combined basis, the total loop and switching price decreased by less than $1 when compared with the result using all of the default values. However, it should be emphasized that we have no objection to the Commission determining to use appropriate values for *insensitive* UAIs. Rather, by focusing on determining the appropriate territory-specific forward-looking costs for the first group of approximately 70 user-adjustable inputs that are sensitive, a more reasonable value to the Federal Universal Service Support mechanism can be appropriately determined.

The use of territory-specific rather than default input values for the 14 groups of sensitive user-adjustable inputs has a significant effect on the results derived from HAI R5.0a. Therefore, it is essential that the data values selected for use with those user-adjustable inputs reflect the conditions of the territory of BellSouth and reflect cost and other conditions reasonably expected to occur in the future. Otherwise, the Commission will not have developed Universal Service Support levels that are specific to the territory and reasonable for use.

In order to indicate how the difference between the AT&T/MCI application of HAI R5.0a, using default inputs, compares with the application of HAI R5.0a using appropriate values for

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[5] Exhibit 2 provides Alternative Values for User-Adjusted Inputs. Exhibits 3-16 provide an analysis and evaluation of the HAI default values for the fourteen groups of related user-adjustable inputs and identifies alternative values. Exhibit 17 provides BST operational and cost information. Exhibits 1-17 are contained in Attachment 2.

Company-specific sensitive user-adjustable inputs, the chart below shows how the 14 groups of sensitive user-adjustable input account for the relative differences in the average loop and average switching prices between the AT&T/MCI result and the result using territory-specific values for one of the states in the BellSouth territory, Tennessee[6]. Similar data is available for the other states but has not been presented. The reconciliation is not exact; *i.e.*, it does not add up exactly, because the relative differences shown in the chart below for each of the 14 sensitive user-adjustable input groups are calculated on a stand-alone basis by making 14 separate model runs. The most precise application of HAI R5.0a is to utilize alternative values for all 14 of the sensitive user-adjustable inputs at the same time in one run, so that each alternative value affects the other interactively.

[6] This table is taken from the testimony of Jamshed K. Madan, Michael D. Dirmeier and David C. Newton in April 9, 1998 before the Tennessee Regulatory Authority, Docket 97-00888.

	Loop	Agg. Switching	Total	Annual Universal Service Support for Primary Residence & Single Line Business Customer Lines[1] ($000,000s)
HAI R5.0a Default-Tennessee Result	$ 15.47	$ 4.67	$20.14	$63.7
1. NID & Drop	$ 1.83	$ (0.05)	$1.78	
2. Terminal & Splice	(0.93)	0.04	(0.89)	
3. Distribution Investment	2.05	(0.02)	2.03	
4. Copper Feeder Investment	0.37	(0.07)	0.30	
5. Fiber Feeder Investment	(0.44)	0.01	(0.43)	
6. Structure Placement	0.51	0.04	0.55	
7. Structure Sharing	2.68	0.04	2.72	
8. Copper & Fiber Fill Factors	(0.81)	0.02	(0.79)	
9. DLC	1.17	(0.02)	1.15	
10. Interoffice Investment	(0.02)	0.01	(0.01)	
11. Switching Factors	(0.02)	0.19	0.17	
12. Expense Factors	0.84	1.47	2.31	
13. Cost of Capital	1.48	0.41	1.89	
14. Depreciation Lives	1.31	0.50	1.81	
Cumulative Effect 1-14 (Sum)	$ 10.02	$ 2.57	$12.59	
BST-Territory Specific HAI R5.0a Application	$24.30	$6.48	$30.78	$151.3

[1] Using a benchmark support level of $31 per primary residence line and $51 per single business line per month.

As can be seen from the above, the impact of using territory-specific sensitive user-

adjustable inputs in place of all default inputs recommended by AT&T/MCI, raises the price of the loop, for example, from $15.47 to $24.30, an increase of 57%. Similarly, using the same set of inputs, the model indicates that the value of the Universal Service Fund using all default values is $63.7 million and $151.23 million using appropriate territory-specific inputs, in each case using the preliminary revenue benchmark of $31 for residential lines and $51 for single business lines.

When examining the chart above, it is important to note that several groups of territory-specific sensitive inputs are less than the AT&T/MCI recommended default values. These groups are fiber feeder investment, copper and fiber fill factors and interoffice investment. Using the same logic, database and procedures that produced these lower inputs, other input groups have significantly higher values than the default inputs which are simply wished away by "expert opinion" largely without any backup or accountability.

IV. VALIDATION OF THE MODEL RESULTS

MCI and AT&T sometimes point to the fact that successive versions of the HM/HAI Models have produced consistently close average loop prices. The contention appears to be that the model, therefore, should be considered "validated." The truth of the matter is that the consistently close average loop prices obtained by the HAI Model sponsors are due to significant (downward) changes that have been made in the user-adjustable input databases associated with successive versions of the model. In other words, later results appear consistent with earlier results because of (downward) changes in the user-adjustable input databases for later versions of the model, not because successive versions of the model would otherwise produce similar results.

In the chart below, we show the results of an analysis indicating how the various database changes have impacted the output of the HM/HAI Model results[7].

Each version of the HM/HAI Models has a database associated with it. The various versions of the model that we analyzed were Version 2 (V 2.2.2), Version 3.1, Version 4.0, and Version 5.0a. Each HM/HAI Model, applied on the basis of its associated user-adjustable input database, does, indeed, modestly change the average loop price and annual Universal Service Support levels produced by the prior model. However, the reason that later versions of the model do not show even greater changes, namely increases, from the results from earlier versions of the model is because of adjustments (mostly downward) in each subsequent user-adjustable input database. As an example, the chart below provides the Universal Service Support level resulting from successive versions of the HM/HAI Model, using different user-adjustable input databases. The results are revealing.

[7] This table is taken from the testimony of Jamshed K. Madan, Michael D. Dirmeier and David C. Newton in April 9, 1998 before the Tennessee Regulatory Authority, Docket 97-00888.

	HM/HAI Model Version			
	2.2	3.1	4.0	5.0a
Data Base	(Universal Service Support ($ millions))[1]			
2.2	$ 8.4	$ 47.6	$ 109.6	$ 93.6
3.1		30.1	78.1	80.6
4.0			65.3	64.3
5.0a				63.7

[1] Using the default inputs derived by AT&T/MCI for each model and a benchmark support level of $31 per primary residence line and $51 per single business line per month.

As the chart shows, had the values for the user-adjustable inputs that are common between HM Version 2.2.2 and HAI Version 5.0a remained constant, the Universal Service Support level would have risen from $8.4 million to $93.6 million. Instead, as a result of changing the user-adjustable input database, the Universal Service Support level computed by the model in Version 5.0a is $63.7 million (using the revenue benchmark of $31 for primary residence line and $51 for single business line per month).

We conclude that while the logic of the HM/HAI Model has been continually changed and updated, resulting in part from proceedings before this Commission, the default inputs have been revised downward significantly in an effort to keep the end result similar to earlier models. This downward adjustment in input values resulted, in part, because the experts providing the "expert opinion" changed - and continued to provide largely no empirical evidence!

V. DEVELOPMENT OF INPUTS THAT ARE SPECIFIC TO THE CONDITIONS OF BELLSOUTH TERRITORY, FORWARD-LOOKING AND REASONABLE

As stated before, the Commission adopted the Joint Board's recommendation that an eligible carrier's level of Universal Service Support should be based upon the forward-looking economic cost of constructing and operating the network facilities and functions used to provide the services that will be supported by the Federal Universal Service Support mechanisms.

There are three reasons why the analysis that we have presented in this paper ensures that the results are forward-looking. One, the structure and logic of HAI R5.0a purport to reflect a telecommunications network of the future, i.e, a most efficient network built from scratch, using forward-looking technology, assuming only existing wire centers in the territories under consideration. Since we have not changed the logic of HAI R5.0a, we leave that feature of the model untouched. Therefore, if the Commission determines that the logic and structure of HAI R5.0a properly reflect the technology of a forward-looking network, our analysis shares equally in that characteristic. In this regard, we would emphasize that we have not validated the HAI Model.

Two, HAI R5.0a assumes quantities of materials corresponding to its hypothetical design. Since we have not changed the logic of the model, we leave those quantities unchanged.

Three, HAI R5.0a calls for cost and other data values associated with its user-adjustable input database that reflect conditions that reasonably can be expected to occur in the future. Our analysis fashions values for the user-adjustable inputs that reflect the conditions of the territories of BellSouth and that are reasonable and forward-looking. Those values are based on current BellSouth data that has been carefully developed to ensure that no embedded costs or other

embedded characteristics are captured. These values have been analytically derived to reflect current conditions in BellSouth's territory and also to reflect conditions reasonably expected to occur in the future.

It is important to point out here that the developers of the inputs to the HAI Model have generally decried what they describe as a lack of available data from the operating companies. Because of this alleged lack of data, the model's sponsors have had to rely on other "publicly available data." A close examination of the HAI inputs portfolio, a document that allegedly describes in detail the derivation of all of the inputs into the HAI Model, clearly indicates that the vast and overwhelming majority of these inputs is based on "expert opinion," without any validation whatsoever from other "publicly available data." In other words, the majority of these inputs are based upon "expert opinion" with no backup whatsoever and no way of validating them with "publicly available data."

In every case, the inputs recommended in these comments are based upon specific information from operations in nine states, as well as information from other operating companies; this information that can be verified and documented. As an example, we will focus on user-adjustable input B-10 in the HAI Model to illustrate this point. Specifically, we compare the default values for input B-10 to the alternative values that we have crafted for this input. The comparison reveals (1) that the alternative values that we have fashioned reflect the conditions of the territories of BellSouth while the default values do not, and (2) that the alternative values we have crafted reflect conditions reasonably expected to occur in the future, while the default values do not.

Input B-10 is one of 11 user-adjustable inputs in the sensitive user-adjustable input group for distribution investment (see Exhibit 5). Input B-10 is copper distribution cable, $/foot, defined by HAI R5.0a as the cost per foot of copper distribution cable as a function of cable size, including the costs of engineering, installation and delivery plus the cost of the cable.

The chart below compares values for user-adjustable input B-10 developed by AT&T/MCI with those that have been specifically derived for the State of Tennessee.